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NPIC/R-172/63
August 1963

PHOTOGRAPHIC INTERPRETATION REPORT

LAUNCH COMPLEXES D, E, AND F
TYURA TAM MISSILE TEST CENTER, USSR

[redacted]

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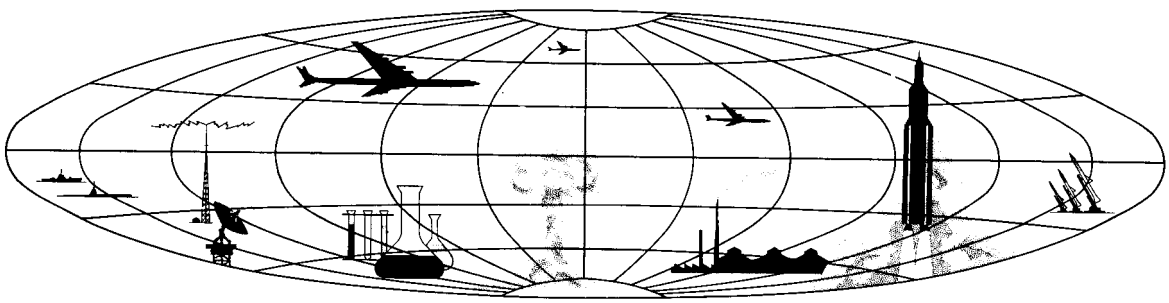

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PHOTOGRAPHIC INTERPRETATION REPORT

LAUNCH COMPLEXES D, E, AND F
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INTRODUCTION

25X1D

The purpose of this study is to update the photo analysis of the eight launch complexes at the Tyura Tam Missile Test Center (Figure 1) utilizing Missions [redacted] This report concerns Launch Complexes D, E, and F. Analysis of Launch Complex G is complete 1/ and Launch Complexes A, B, C, and H are currently in study. Launch Complex D was not covered on Mission [redacted] and additional details of Launch Complexes E and F could not be determined.

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Launch Complex D is comprised of Launch Areas D1 and D2 and is the prototype of Type III deployed ICBM sites. Launch Complex F is also a hardened facility but displays a somewhat different signature from Complex D and may be the prototype of at least one deployed site (Omsk Launch Site A).

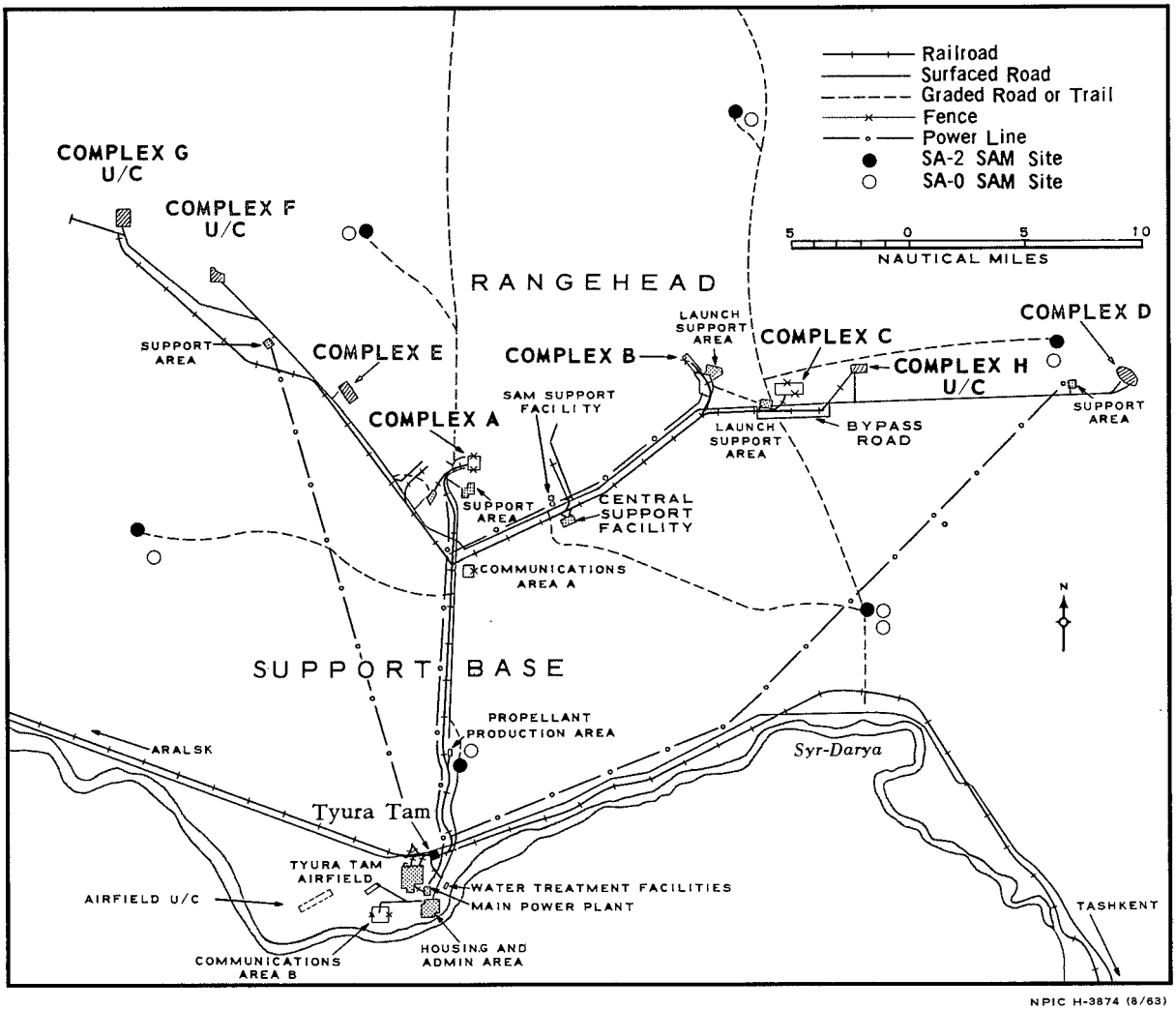

FIGURE 1. TYURA TAM MISSILE TEST CENTER.

Launch Complex E is a soft site. No deployed sites have been identified having all the features present at E. The construction timing as well as the spacing of the facilities and the general layout of the complex indicate that it is the prototype for a Type IV deployed ICBM launch site 2/.

LAUNCH COMPLEX D

Launch Complex D (46-00N 63-59E) is the easternmost launch facility at the rangehead. It consists of two Type III launch areas which are designated D1 and D2 (Figure 2). Area D1 is completed while Area D2, which is located 4,100 feet to the east, is in a midstage of construction. Transportation to the complex is by road from its associated support buildings which are located 14 nautical miles (nm) to the west within the fenced support area which serves Launch Complex C. A ground scar, probably a waterline, parallels the main road and then branches to serve each of the two launch areas. Launch Complex D is the prototype for the Type III ICBM sites which presently number 16 at ten separate deployed complexes in the Soviet Union.

LAUNCH AREA D1

Launch Area D1 (Figure 3) represents the completed signature of Type III ICBM sites. The [redacted] photo coverage suggests that the most striking features of a Type III ICBM site on KEYHOLE photography will be: (1) an elongated loop road; (2) an earth-mounded control bunker; (3) three silo covers; (4) a probable covered water storage and cooling facility (spray pond); and (5) two semiburied probable tanks inside the loop road. 25X1D

The loop road pattern measures about 900 by 350 feet. The long axis of the control bunker,

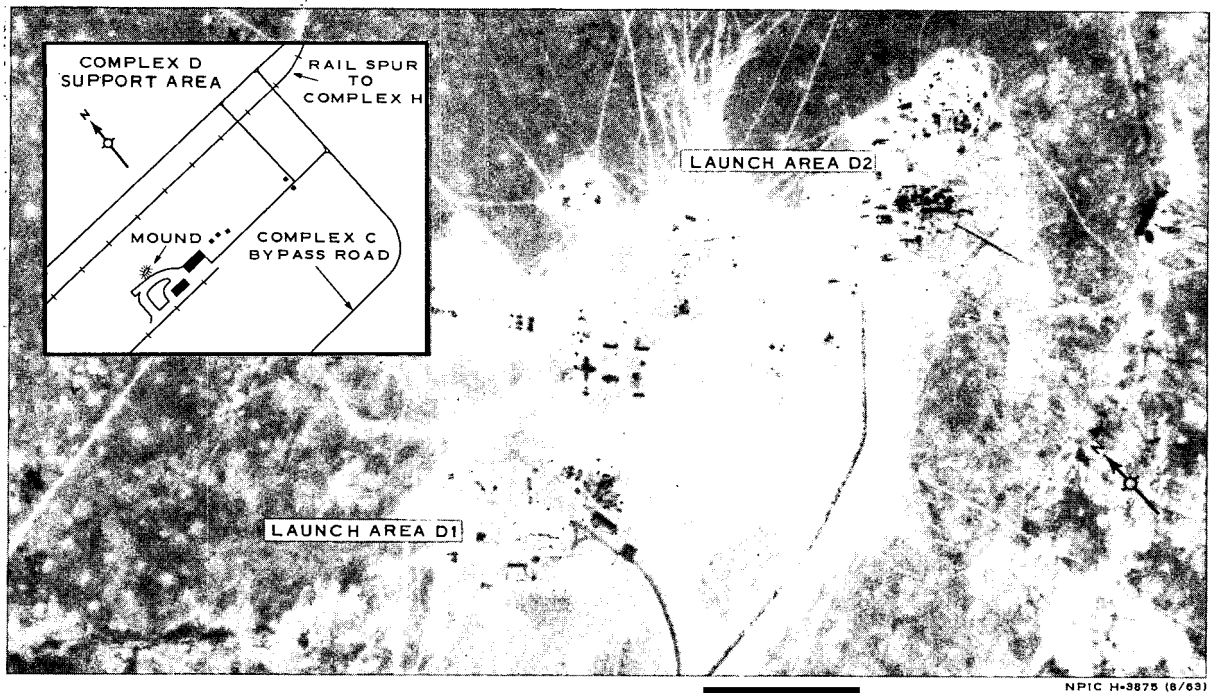

FIGURE 2. LAUNCH COMPLEX D [redacted] 25X1D

which measures 180 by 110 feet when mounded, is aligned with the three silos parallel to the loop road system. The three silo covers measure about 80 by 40 feet and are separated approximately 180 feet on center. The long axes of the covers are canted at a 45-degree angle from the long axis of the site. The silo covers appear to extend a few feet above the surrounding flat surface and are slightly beveled, as shown in Figure 3. Photo coverage of the site during construction and examination of Area D2 indicate that there are two buried terminal equipment bunkers located between the three silos. No indications of these two structures could be identified on Mission [redacted] 25X1D

These five structures are not centered on the control bunker. The left silo (as observed from the control bunker) is farther from the control bunker than the silo on the right. This feature is not unique to this site. It appears at Area D2 as well as at deployed type III sites, as indicated by the uncentered notch for the control bunker. It should be noted that the center point between the outside edge of the right silo and the outside edge of the left equipment bunker is centered on the control bunker. Although the silo cover to the left appears the same as the other two at a completed site, in no case to date has this silo appeared the same as the other two during the construction phase. (NPIC believes that the four good photo coverages available of Type III sites in a midstage of construction are not enough evidence to determine the function of the left silo.)

The control bunker is raised slightly higher than the surrounding terrain. The most likely location for a personnel entrance is on the left side near the front. The 175- by 55-foot building which is located along the main access road is served by a probable concrete apron. It appears to be a drive-in rather than a drive-

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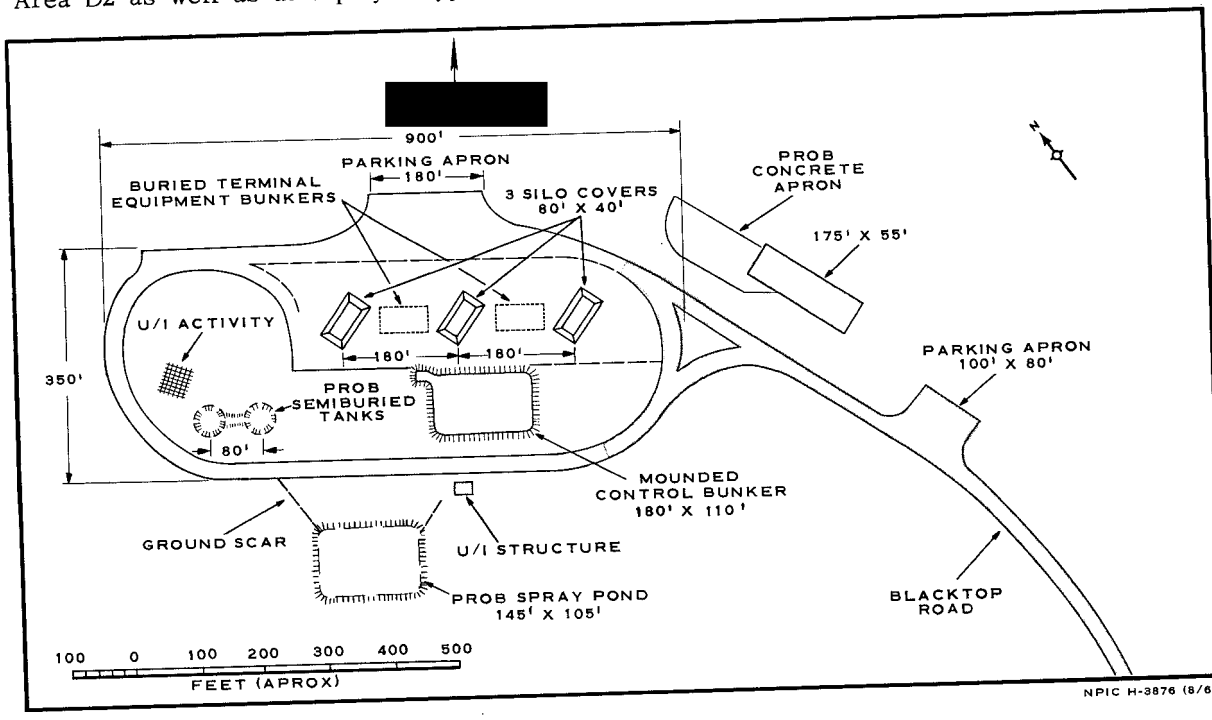

FIGURE 3. LAUNCH AREA D1.

through building. Excavations for the probable spray pond and the two probable semiburied tanks have been identified on previous coverages. Evidence of these structures can be identified at Area D2 and at several deployed sites during construction. An unidentified activity or area of discoloration measuring about 50 feet across is located inside the loop road near the left end.

25X1D No change has occurred since [redacted]
25X1D [redacted] in the building area located about 1,000 feet forward of the launch area.

LAUNCH AREA D2

Launch Area D2 (Figure 4) is located about 4,100 feet east of Area D1 and is oriented on the same azimuth. The larger part of the excavation measures about 550 by 180 feet. It has not yet been backfilled. Inside the excavation are five objects. Four of these are well defined and the fifth is indistinct. The well-defined objects are two launch silos and two terminal equipment bunkers. The fifth object, on the left, can be identified as a silo, but its function cannot be determined.

The two terminal equipment bunkers, which will probably house such facilities as pumphouses, power, air conditioning, maintenance shops, and other related support facilities, are under construction. The two launch silos, also under construction, measure 55 by 55 feet and each has a dark image which measures 30 feet in diameter. The pair of terminal equipment bunkers and the two silos are firm measurable images. The different appearance of the third silo can be attributed either to the construction status or to the fact that a different type of silo is under construction.

The rear side of the excavation containing the control bunker is being backfilled. A long narrow excavation containing two tanks is located about 250 feet to the left of the control bunker. A counterpart to the probable spray

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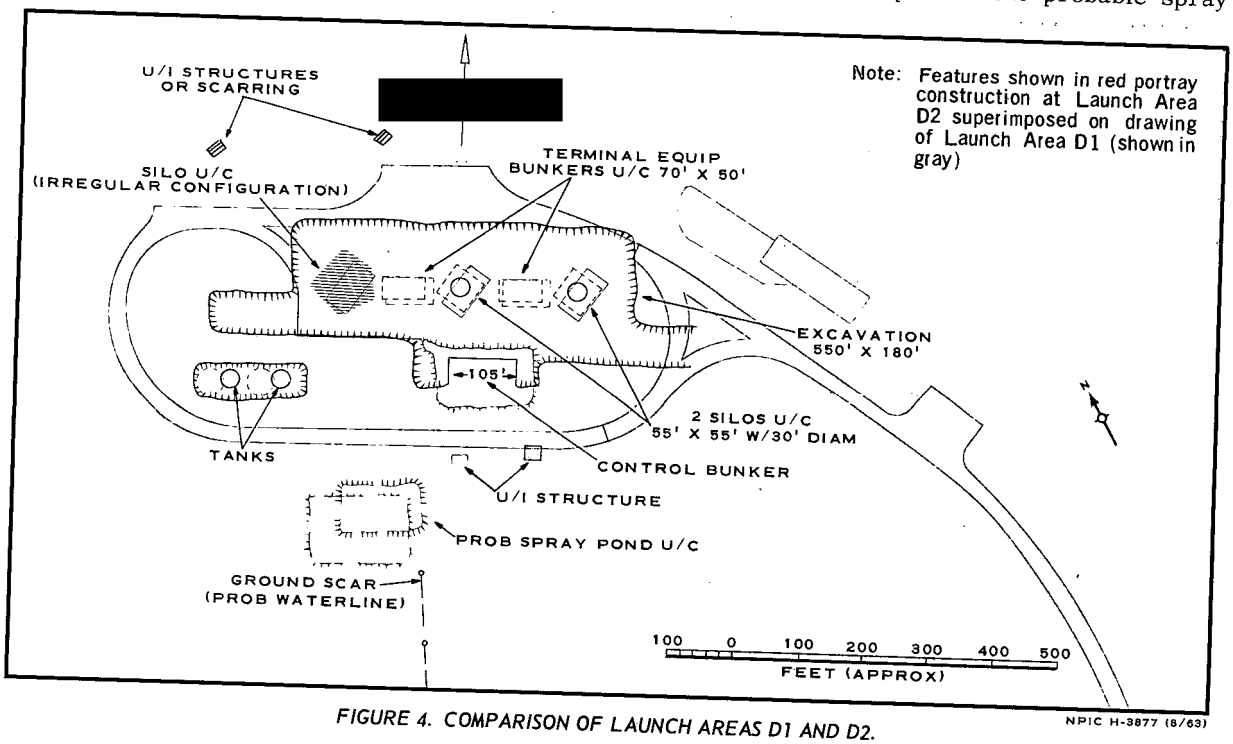

FIGURE 4. COMPARISON OF LAUNCH AREAS D1 AND D2.

pond located at D1 can be identified under construction in the same relative position at D2.

At present the main access road serving Area D2 terminates about 600 feet to the rear of the projected loop road system. No structure comparable to the 175- by 55-foot building located adjacent to Area D1 can be identified at this site.

No changes have occurred in the support facilities serving Launch Complex D, which are located at the extreme east end of the fence enclosing the launch support area at Launch Complex C.

LAUNCH COMPLEX E

Launch Complex E (45-57N 63-12E) is located 20 nm north-northwest of the Support Base and 6.5 nm northwest of Launch Complex A. This complex consists primarily of a fenced launch area containing three pads (Figure 5), an electronics facility, 15 major buildings or structures, and an interferometer. Just outside the south fence line near the entrance gate are ancillary facilities. No separate launch support area can be directly associated with the complex. However, Missile Assembly and Checkout Facility No 2, located to the rear of Launch Complex A, may serve this need.

The complex was first observed in [redacted] 25X1D
[redacted] in an early stage of 25X1D
construction. In [redacted] 25X1D
it appeared to be in midstage. By [redacted] 25X1D
[redacted] most of the buildings or struc- 25X1D
tures were essentially complete, and the complex was complete or in a very late stage of

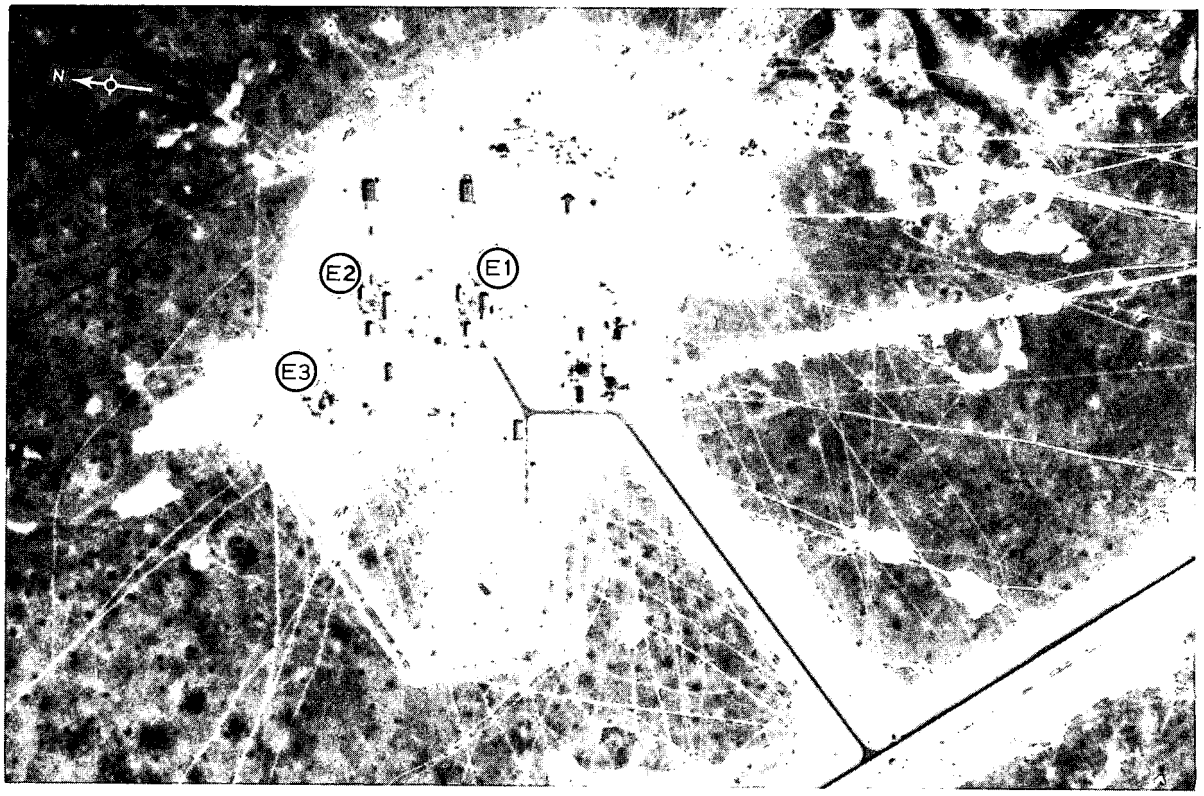

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FIGURE 5. LAUNCH COMPLEX E, PADS E1, E2, AND E3 [redacted] 25X1D

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construction. It was definitely complete in [redacted] Coverage of [redacted] reveals additional information which can be attributed to better photo quality.

Most of the facilities at the complex (Figure 6) are in an area approximately 4,500 by 2,500 feet overall, enclosed within a double security fence. A plus-configured interferometer with base lines measuring approximately 1,200 feet is located in the west end of the fenced area. Its base legs are parallel to almost all of the other interferometer devices located at the rangehead.

The long axes of the most significant items in the launch area--the launch pads, their associated buildings, and the road net--are oriented on an azimuth of [redacted] 25X1D
Included in the launch facilities are duplicate parallel (not mirror images) layouts of four buildings, launch pads, and their connecting road plan. The road plan is unusual in that

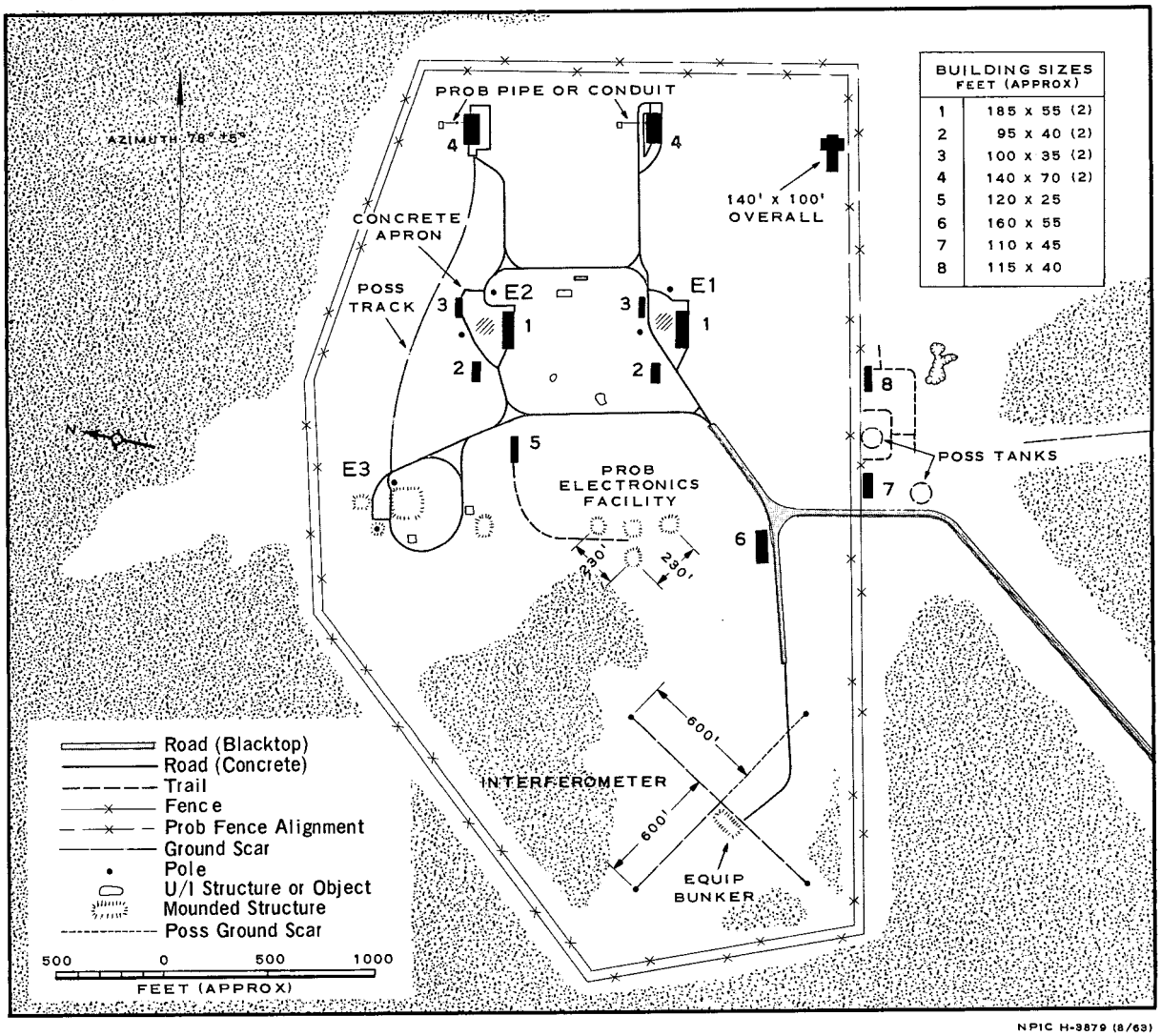

FIGURE 6. LAYOUT OF LAUNCH COMPLEX E.

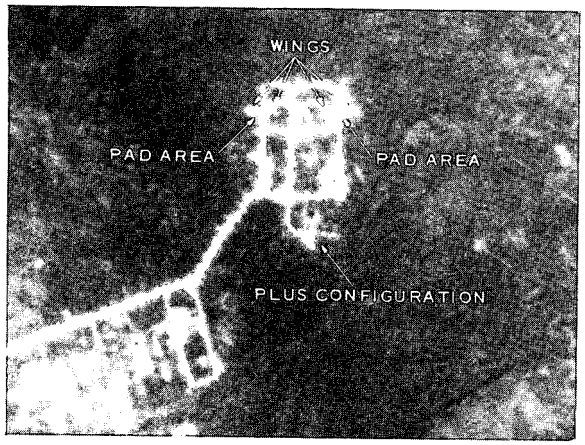

FIGURE 7. TYPE IV ICBM SITE UNDER CONSTRUCTION [redacted]

25X1D [redacted] 25X1D

straight access between connecting facilities has been intentionally avoided. It would appear that ground support equipment would encounter some difficulty in maneuvering. However, road turning radii are not prohibitive to rather long equipment, if necessary.

At the extreme east end of the fenced area are two buildings (Figure 6, item 4) which measure about 140 by 70 feet and are separated by a distance of 800 feet. These buildings are similar to several missile-ready buildings located at deployed ICBM sites. However, as the photo and line drawing indicate, the roads approach these buildings in a peculiar fashion. In [redacted] a probable trench connected each of these buildings to the pad west of it. A small unidentified object is located north of each building, and is connected to it by means of a narrow probable pipe or conduit.

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Approximately 800 feet west of each of these buildings are three other buildings and two probable light poles surrounding an irregularly shaped pad (E1 and E2). Each pad contains an irregular dark area in the center which measures about 65 feet across. The largest of the buildings (Figure 6, item 1), which is aligned along the length of the pad, measures 185 by 55 feet. It is interesting to note that the vehicle/equipment stalls located at pads C1 and C2 of Launch Complex C measure 145 by 35 and 185 by 35 feet, respectively. The function of this building may parallel the function of the stalls at Complex C. The smallest of the three buildings (Figure 6, item 2) measures 95 by 40 feet and is in line with the pad and the missile-ready building. This building does not abut the pad as do the two larger buildings. The third building (Figure 6, item 3) measures 100 by 35

[redacted]

darkened area in the center of each pad indicates that these sites have had live firings. The two poles or masts which are present at both pads in the same relative position may be light poles. There are at least four small unidentified structures or objects located in the space between the sets of buildings.

Pad E3 is located about 1,000 feet northwest of pad E2, and is connected to the entry road by a paved, almost circular road with long-radius curves. The circular road measures about 370 feet in diameter and encloses a mounded structure. In the [redacted] photo coverage, an excavation was present where this structure is now located. Opposite this structure and across the pad is a heavily revetted building or earth-mounded structure. A third small mounded structure is located at the west end of the pad. Due to mounding, the sizes of these three structures are undetermined. The configuration of the pad (nearly square) and the three structures is similar to pad A2 at Launch Complex A, and to the pad areas at Kozelsk B and Tyumen C. During the construction phase of Type IV sites (Figure 7) the pad area appears to have an appendage or wing on each side.

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Also present, adjacent to the pad, are two probable light poles. A trace, possibly a track or unpaved road, curves gently and connects with the northernmost of the two missile-ready buildings.

Located almost 900 feet west of pad E1 are four objects forming a triangle or more precisely an L-shape. These objects probably function as an electronics facility and may be an L-shaped interferometer with base legs measuring approximately 230 feet. The fourth object probably functions as the associated equipment control bunker for the facility. This electronics facility relates to the plus configurations located at deployed Type IV ICBM sites (Figure 7). A light-toned ground scar connects this facility with a 120- by 25-foot building (Figure 6, item 5) located nearby.

Just outside the fence line near the access road are at least two possible tanks and two buildings or structures (Figure 6, items 7 and 8). The function of this facility, as well as the T-shaped building inside the fence to the east, is undetermined.

LAUNCH COMPLEX F

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Launch Complex F (46-02N 63-06E) is located on a small knoll 6 nm northwest of Launch Complex E at the terminus of a well-graded road. [redacted] (Figure 8) indicates that this complex is in a very late stage of construction. Construction of the control bunker and the left silo, as observed from the control bunker, were confirmed from this mission.

Construction of the complex was started sometime in the [redacted] between [redacted] The relatively poor photography of [redacted] shows that the complex was served only by an unimproved road leading

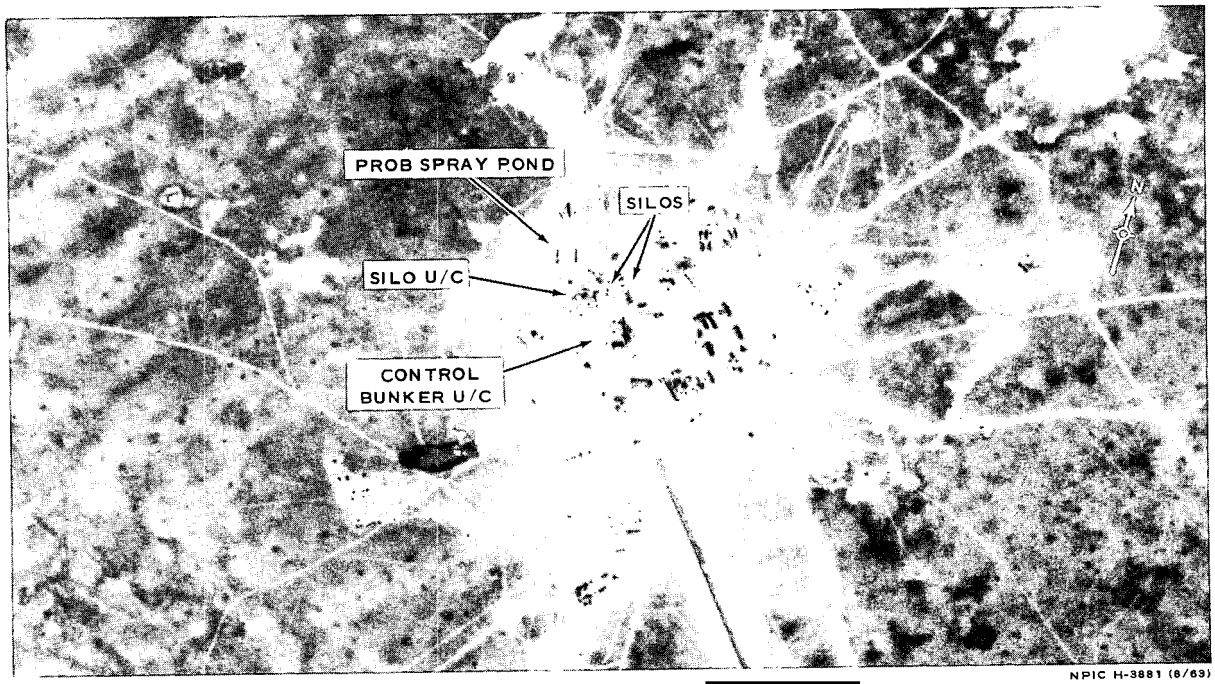

FIGURE 8. LAUNCH COMPLEX F [redacted]

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to a probable trough-like excavation of undetermined depth containing three dark objects or holes. Later coverages proved these to be three silos in varying stages of construction. The complex was covered again on [redacted]. Although the photo quality was poor, a dark rectangular image could be located where the trough was previously identified. None of the three objects in the trough could be identified at that time. Across the loop service road was an excavation or earth scarring in the snow. The quality of the four successive coverages, [redacted] was not sufficient for reliable detailed analysis. Only gross features could be observed and no significant changes were apparent.

The first good-quality coverage of this complex occurred on [redacted]. Construction could have been underway as long as 21 months at that time. As of [redacted] several significant items could be identified. These included: (1) two silos which appeared as domelike structures; (2) a third silo which appeared different from but was in line with the other two silos; (3) possible substructure for the control bunkers; (4) a well-defined loop road system which enclosed the above-mentioned items; and (5) a probable spray pond. In addition, all the buildings which were previously identified at the complex could be measured more accurately. The two successive coverages were accomplished on [redacted] The former was of poor quality; however construction activity in the area of the control bunker could be identified. The complex could only be identified on the latter coverage. The coverage [redacted] is of better quality than all the previous missions. The detailed description of the complex was derived primarily from [redacted]. The differences in the nearly completed signature and orientation from those observed at Complex D indicate this complex is the prototype for a new hardened configuration. The lack of good-quality comparative photo coverage precludes a comprehensive analysis through all construction phases. The complex was still under construction in [redacted], and the status of completion could not be determined from photography of [redacted].

Launch Complex F (Figure 9) has several striking similarities to Complex D, but construction techniques at Complex F may be unique in that the control bunker was built in a separate excavation. Until more sites of this type are observed, no specific determination of excavation practices can be predicted.

Each of the three silos is separated by a distance of 180 feet. The midpoint between the right silo and the middle silo is centered on the control bunker. Thus the left silo is farther from the control bunker than the other two. The pair to the right appear to be domed on [redacted], while the one on the left is rather vague and casts a correspondingly vague shadow. [redacted] later, on [redacted] the silo to the left appears to be domed while the other two appear as rather indistinct low-lying objects or mounds and cast almost no shadow. Evidently backfilling had not been completed on the silos when the shadows were longest and most apparent, or an environmental cover was in place, or the image resulted from a combination of the two situations. In each case the domes appeared to have a diameter of about 50 feet.

Although all three silos appeared essentially the same at one phase of construction, it cannot be stated conclusively that all three are identical. The center and right silos are probably complete but no definitive shapes such as the covers at Complex D could be identified. At no time during

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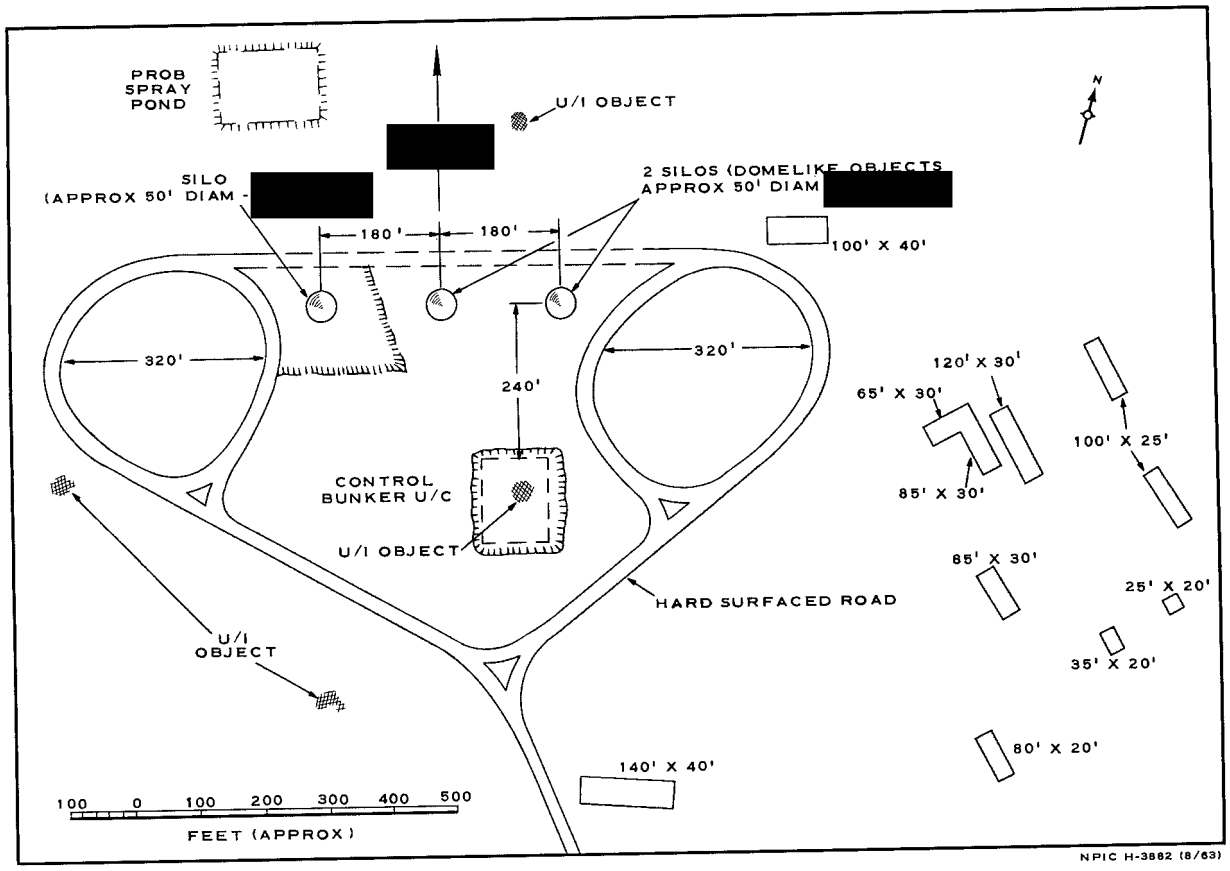

FIGURE 9. LAYOUT OF LAUNCH COMPLEX F.

construction were the terminal equipment bunkers identified between the silos at Complex D identified at Complex F.

A rectangular facility is located about 275 feet in front of the left silo. It is probably a covered spray pond, being closely compatible in size and appearance to the one at site D1. No other well-defined construction activity was observed inside the loop road pattern. All of the buildings in the area seem to be associated with construction activity rather than operationally associated. One building which measures about 100 by 40 feet is located just forward of the loop road on the right side but has no apparent good road connection.

REFERENCES

PHOTOGRAPHY

25X1D

[redacted]

MAPS OR CHARTS

DESPA. Series 1, Sheet NL 41-5 and Sheet NL 41-8, 1st ed, Nov 62, scale 1:250,000 (TOP SECRET RUFF)

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2. NPIC. R-15/63, Reexamination of Launch Complex E, Tyura Tam Missile Test Center, USSR, Feb 63 (TOP SECRET CHESS RUFF)

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NPIC. R-133/62, Launch Complex E, Tyura Tam Missile Test Center, Sep 62 (TOP SECRET CHESS RUFF)

REQUIREMENTS

AF 2-63

OSI/R-144/63

OSI/R-140/63

NPIC PROJECT

J-79/63 (partial answer)